IN THE CLAIMS:

Please cancel claims 21-27 and 36-42, and add new claims 54-59 as follows:

1. (Original) A method for electroplating a copper deposit onto a semiconductor integrated circuit device substrate with electrical interconnect features including submicron-sized features such that the surface has submicron-sized reliefs therein, the method comprising:

immersing the substrate into an electroplating bath including ionic copper and an effective amount of a defect reducing agent; and

electroplating the copper deposit from said bath onto the substrate to fill the submicron-sized reliefs whereby the occurrence of protrusion defects from superfilling, surface roughness, and voiding due to uneven growth are reduced, and macro-scale planarity across the wafer is improved.

2. (Original) The method of claim 1 wherein the defect reducing agent reduces high current density edge effect during electroplating.

3. (Original) The method of claim 1 wherein the defect reducing agent improves distribution of deposited copper over the substrate surface.

4. (Original) The method of claim 1 wherein the deposit has a deposit thickness of about 1 micron and which varies by no

more than about 0.2 microns across the deposit, the deposit thickness being measured from an upper surface of the deposit to the substrate surface at its thickest point.

5. (Original) The method of claim 1 wherein the defect reducing agent facilitates deposition of a thinner overall deposit to achieve a minimum thickness across the substrate than an overall deposit required to achieve such minimum thickness by electroplating without said defect reducing agent.

6. (Original) The method of claim 1 comprising removing a portion of the copper deposit by chemical and mechanical action to yield a level substrate, wherein an amount of copper deposit to be removed is less than an amount of copper deposit which must be removed by chemical and mechanical action to yield a level substrate in a comparable substrate electroplated without said defect reducing agent.

7. (Original) The method of claim 6 wherein pitting corrosion from said chemical action is less severe than pitting corrosion in the comparable substrate electroplated without said defect reducing agent.

8. (Original) The method of claim 1 wherein the defect reducing agent is an aliphatic polyamine compound.

9. (Original) The method of claim 1 wherein the defect reducing agent is a polymeric nitrogen heterocyclic compound.

10. (Original) The method of claim 1 wherein the defect reducing agent is a reaction product of benzyl chloride and hydroxyethyl polyethylenimine.

11. (Original) The method of claim 1 wherein the defect reducing agent is a reaction product of benzyl chloride and polyethylenimine.

12. (Original) The method of claim 1 wherein the defect reducing agent is the reaction product of 1-chloromethylnaphthalene and hydroxyethyl polyethylenimine.

13. (Original) The method of claim 1 wherein the defect reducing agent is selected from the group consisting of polyvinylpyridines and polyvinylimidazole and their quaternized salts.

14. (Original) A method for electroplating a copper deposit onto a semiconductor integrated circuit device substrate having electrical interconnect features including submicron-sized features such that the surface has submicron-sized reliefs therein, the method comprising:
immersing the substrate into an electroplating bath including ionic copper and an effective amount of a defect reducing agent which reduces a rate of recrystallization and grain growth in the copper deposit, thereby reducing the formation of internal voids within the copper deposit; and
electroplating the copper deposit from said bath onto the

substrate to fill the submicron sized reliefs, which deposit subsequently undergoes recrystallization and grain growth at a reduced rate and thereby is characterized by a reduced concentration of internal voids.

15. (Original) The method of claim 14 wherein the defect reducing agent is an aliphatic polyamine compound.

16. (Original) The method of claim 14 wherein the defect reducing agent is a polymeric nitrogen heterocyclic compound.

17. (Original) The method of claim 14 wherein the defect reducing agent is a reaction product of benzyl chloride and hydroxyethyl polyethylenimine.

18. (Original) The method of claim 14 wherein the defect reducing agent is a reaction product of benzyl chloride and polyethylenimine.

19. (Original) The method of claim 14 wherein the defect reducing agent is the reaction product of 1-chloromethylnaphthalene and hydroxyethyl polyethylenimine.

20. (Original) The method of claim 14 wherein the defect reducing agent is selected from the group consisting of polyvinylpyridines and polyvinylimidazole and their quaternized salts.

21-27. (canceled)

28. (Original) A concentrate for preparation of a copper electroplating bath for electroplating a copper deposit onto a semiconductor integrated circuit device substrate having electrical interconnect features including submicron-sized features such that the surface has submicron-sized reliefs therein, the concentrate comprising a defect reducing agent which reduces the occurrence of protrusion defects from superfilling, surface roughness, and voiding due to uneven growth, and improves macro-scale planarity across the wafer.

29. (Original) The concentrate of claim 28 wherein the defect reducing agent is an aliphatic polyamine compound.

30. (Original) The concentrate of claim 28 wherein the defect reducing agent is a polymeric nitrogen heterocyclic compound.

31. (Original) The concentrate of claim 28 wherein the defect reducing agent is a reaction product of benzyl chloride and hydroxyethyl polyethylenimine.

32. (Original) The concentrate of claim 28 wherein the defect reducing agent is a reaction product of benzyl chloride and polyethylenimine.

33. (Original) The concentrate of claim 28 wherein the defect reducing agent is the reaction product of 1-chloromethylnaphthalene and hydroxyethyl polyethylenimine.

34. (Original) The concentrate of claim 28 wherein the defect reducing agent is selected from the group consisting of polyvinylpyridines and polyvinylimidazole and their quaternized salts.

35. (Original) The concentrate of claim 28 wherein the defect reducing agent reduces a rate of recrystallization and grain growth in copper deposited using said copper electroplating bath, thereby reducing the formation of internal voids in the deposited copper.

36-42. (canceled)

43. (Original) A concentrate for preparation of a copper electroplating bath for electroplating a copper deposit onto a semiconductor integrated circuit device substrate having electrical interconnect features including submicron-sized features such that the surface has submicron-sized reliefs therein, the concentrate comprising a defect reducing agent which yields a copper deposit having an overall surface which is more level than a comparable overall surface electroplated without the defect reducing agent.

44. (Original) The concentrate of claim 43 wherein the defect reducing agent reduces high current density edge effect during electroplating.

45. (Original) The concentrate of claim 43 wherein the defect reducing agent improves distribution of deposited copper over the substrate surface.

46. (Original) The concentrate of claim 45 wherein the electroplating bath containing the concentrate yields a deposit thickness of about 1 micron and which varies by no more than about 0.2 microns across the deposit, the deposit thickness being measured from an upper surface of the deposit to the substrate surface at its thickest point.

47. (Original) The concentrate of claim 43 wherein the defect reducing agent facilitates deposition of a thinner overall deposit to achieve a minimum thickness across the substrate than an overall deposit required to achieve such minimum thickness by electroplating without said defect reducing agent.

48. (Original) The concentrate of claim 43 wherein the defect reducing agent is an aliphatic polyamine compound.

49. (Original) The concentrate of claim 43 wherein the leveling agent is a polymeric nitrogen heterocyclic compound.

50. (Original) The concentrate of claim 43 wherein the defect reducing agent is a reaction product of benzyl chloride and hydroxyethyl polyethylenimine.

51. (Original) The concentrate of claim 43 wherein the defect reducing agent is a reaction product of benzyl chloride and polyethylenimine.

52. (Original) The concentrate of claim 43 wherein the defect reducing agent is the reaction product of 1-chloromethylnaphthalene and hydroxyethyl polyethylenimine.

53. (Original) The concentrate of claim 43 wherein the defect reducing agent is selected from the group consisting of polyvinylpyridines and polyvinylimidazole and their quaternized salts.

54. (new) The method of claim 10 wherein the defect reducing agent reduces high current density edge effect during electroplating.

55. (new) The method of claim 10 wherein the defect reducing agent improves distribution of deposited copper over the substrate surface.

56. (new) The method of claim 10 wherein the deposit has a deposit thickness of about 1 micron and which varies by no more than about 0.2 microns across the deposit, the deposit thickness

being measured from an upper surface of the deposit to the substrate surface at its thickest point.

57. (new) The method of claim 10 wherein the defect reducing agent facilitates deposition of a thinner overall deposit to achieve a minimum thickness across the substrate than an overall deposit required to achieve such minimum thickness by electroplating without said defect reducing agent.

58. (new) The method of claim 10 comprising removing a portion of the copper deposit by chemical and mechanical action to yield a level substrate, wherein an amount of copper deposit to be removed is less than an amount of copper deposit which must be removed by chemical and mechanical action to yield a level substrate in a comparable substrate electroplated without said defect reducing agent.

59. (new) The method of claim 10 wherein pitting corrosion from said chemical action is less severe than pitting corrosion in the comparable substrate electroplated without said defect reducing agent.